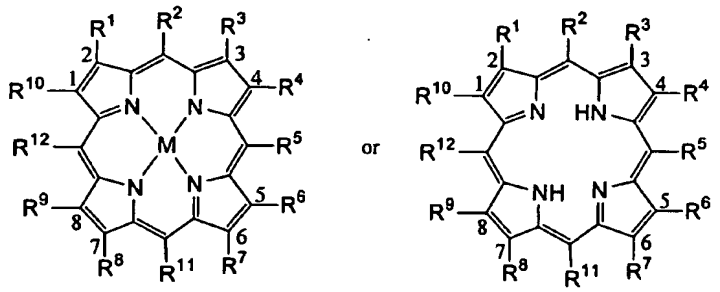
We claim:

1. A method for preventing a viral infection in a human comprising administering to a mucosal surface of a composition comprising a synthetic porphyrin or a pharmaceutically acceptable salt thereof to a human, wherein the porphyrin has the following structure:



Formula I

wherein R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{11} and R^{12} taken independently or together can be hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, phenyl, substituted phenyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, halo, nitro, hydroxyl, alkoxy, substituted alkoxy, phenoxy, substituted phenoxy, aroxy, substituted aroxy, alkylthio, substituted alkylthio, phenylthio, substituted phenylthio, arylthio, substituted arylthio, heteroarylthio, substituted heteroarylthio, cyano, isocyano, substituted isocyano, carbonyl, substituted carbonyl, carboxyl, substituted carboxyl, amino, substituted amino, amido, substituted amido, sulfinyl, substituted sulfinyl, sulfonyl, substituted sulfonyl, sulfonic acid, substituted sulfonic acid, phosphonato, substituted phosphonato, phosphoramide, polyaryl, substituted polyaryl, C1-C20 cyclic, substituted C1-C20 cyclic, heterocyclic, substituted heterocyclic, aminoacid, peptide, or polypeptide group, and

wherein M is a metal atom selected from the group consisting of main group or transition metal atoms which optionally binds to one or more ligands, and

wherein the porphyrin or the pharmaceutically salt thereof is in an effective amount to prevent the viral infection.

2. The method of claim 1 wherein the viral infection is caused by a virus selected from the group consisting of HIV viruses, HSV viruses, hepatitis B and C viruses, or papilloma viruses

3. The method of claim 1 wherein the viral infection is caused by a virus selected from the group consisting of HIV viruses.

4. The method of claim 1 wherein the viral infection is caused by a virus selected from the group consisting of HSV viruses.

5. The method of claim 1 wherein the viral infection is caused by a virus selected from the group consisting hepatitis B and C viruses, or papilloma viruses.

6. The method of claim 1 wherein the infection is caused by a virus selected from the group consisting of HIV and HSV viruses,

wherein R^1, R^3, R^4, R^6, R^7, R^9, R^{10}, and R^{12} are hydrogen, and R^2, R^5, R^8, and R^{11} are alkyl, heteroalkyl, aryl, or heteroaryl groups, and

wherein the porphyrin as a whole bears one or more sulfonic acid or derivatized sulfonic acid groups.

7. The method of claim 6 wherein the porphyrin is a Cu or Fe chelate of the structure of Formula I.

8. The method of claim 1 where the infection is caused by a virus selected from the group consisting of HSV viruses,

wherein R^2, R^5, R^8, and R^{11} are hydrogens and R^1, R^3, R^4, R^6, R^7, R^9, R^{10}, and R^{12} are hydrogen, alkyl, heteroalkyl, or substituted alkyl groups, and

wherein the molecule as a whole bears two or more carboxylic acid groups.

9. The method of claim 8 wherein the porphyrin is a Cu or Fe chelate of the structure of Formula I.

10. The method of claim 1 wherein the viral infection is caused by a virus selected from the group consisting of HIV viruses, and

wherein the compound is selected from the group consisting of TNapPS, TPP(2,6-F2)S,Cu; TAnthPS, TMPS,Co, DPEG,Fe, DPEG,Zn;

TPPC,Fe; TPPC; TPP(2,6-C12)S,Fe and TPP(2,6-Cl2)S; TPP2FS;TPP4ClS; TPP(2,6-Cl2); TPP(2,6-F2)S,Cu; TPP(2F,FCF3)S; and mixtures thereof.

11. The method of claim 1 where the viral infection is caused by a virus selected from the group consisting of HSV viruses, and

wherein the compound is selected from the group consisting of DPIX,Fe; HPIX,Fe; HPIX,Zn; PPIX,In; MPIX,Co; PPIX,Co; PPIX,Fe; PPIX,In; DPIX 2,4-bis ethylene glycol,Cu; tetrakis(2,6-difluorosulfonatonatophenyl)porphyrin; tetrakis(2,6-difluorosulfonatonatophenyl)porphyrin,Cu; tetrakis(2,6-dichlorosulfonatonatophenyl)porphyrin; tetrakis(2-chlorosulfonatophenyl)porphyrin; tetrakis(3-chlorosulfonatophenyl)porphyrin; tetrakis(2-fluorosulfonatonatophenyl)porphyrin; tetrakis(2-fluorosulfonatonatophenyl)porphyrin,Cu; TMesPS,Co; TMesPS,Fe; TPPC4; TPPS3; TPPS3,Ag; TPPS3,Cu; TPPS3,Fe; TPPS3,Zn; TPPS4,Ag; TPPS4,Cu; TPPS4,Fe; TPPS4,Zn; and the sulfonated derivatives of tetrakis(1-naphthyl)porphyrin and tetrakis(2-naphthyl)porphyrin, the Zn, Fe, and Cu chelates thereof, and mixtures thereof.

12. The method of claim 1 wherein the compound is protected against rapid elimination from the body.

13. The method of claim 1 further comprising providing the compound in a pharmaceutically acceptable carrier selected from the group consisting of ointments, creams, gels, lotions, troches, suppositories, vaginal rings, liposomes, nanoparticulates, microspheres, and controlled release formulations.

14. The method of claim 1 further comprising administering a therapeutically effective amount of at least one compound selected from the group consisting of antibiotics, virucidals, antifungals, and immunostimulants.

15. The method of claim 1 further comprising administering a therapeutically effective amount of at least one microbicide selected from the group consisting of carraguard, antibodies, defensins, cyclodextrins,

polyethylene hexamethylene biguanide, and other compounds which are active in preventing viral infection.

16. The method of claim 14 wherein the virucidal is selected from the group consisting of HPA-23, interferons, ribavirin, phosphonoformate, ansamycin, suramin, imuthiol, penicillamine, carbovir, 3'-azido-3'-deoxythymidine (AZT), 2',3'-dideoxycytidine (DDC), 2',3'-dideoxyinosine (DDI), 2',3'-dideoxyadenosine (DDA), 3'-azido-2',3'-dideoxyuridine (CS-87), 2',3'-dideoxy-2',3'-didehydrocytidine (D4C), 3'-deoxy-2',3'-didehydrothymidine (D4T) and 3'-azido-5-ethyl-2',3'-dideoxyuridine (CS-85).

17. The method of claim 1 wherein the composition is administered topically or to the mucosa.

18. The method of claim 17 wherein the composition is administered to the female genital tract.

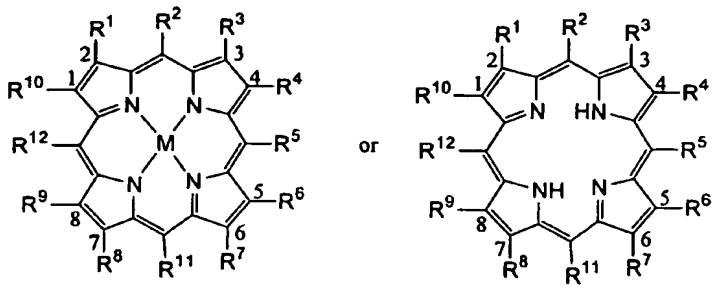
19. The method of claim 17 wherein the composition is administered rectally.

20. The method of claim 1 wherein the M is selected from the group consisting of gallium (Ga), aluminum (Al), cadmium (Cd), ruthenium (Ru), rhodium (Rh), platinum (Pt), osmium (Os), iridium (Ir), iron (Fe), cobalt (Co), zinc (Zn), molybdenum (Mo), titanium (Ti), manganese (Mn), chromium (Cr), nickel (Ni), magnesium (Mg), copper (Cu), indium (In), vanadium (V), silver (Ag), gold (Au), and tin (Sn).

21. The method of claim 20 wherein M is Cu.

22. The method of claim 20 wherein M is Fe.

23. A composition for mucosal administration for preventing a viral infection comprising a synthetic porphyrin or pharmaceutically active salt thereof having the following structure:



Formula I

wherein R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{11} and R^{12} taken independently or together can be hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, phenyl, substituted phenyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, halo, nitro, hydroxyl, alkoxy, substituted alkoxy, phenoxy, substituted phenoxy, aroxy, substituted aroxy, alkylthio, substituted alkylthio, phenylthio, substituted phenylthio, arylthio, substituted arylthio, heteroarylthio, substituted heteroarylthio, cyano, isocyano, substituted isocyano, carbonyl, substituted carbonyl, carboxyl, substituted carboxyl, amino, substituted amino, amido, substituted amido, sulfinyl, substituted sulfinyl, sulfonyl, substituted sulfonyl, sulfonic acid, substituted sulfonic acid, phosphonato, substituted phosphonato, phosphoramide, polyaryl, substituted polyaryl, C1-C20 cyclic, substituted C1-C20 cyclic, heterocyclic, substituted heterocyclic, aminoacid, peptide, or polypeptide group, and

wherein M is a metal atom selected from the group consisting of main group or transition metal atoms which optionally binds to one or more ligands, and

a pharamaceutically acceptable carrier for mucosal administration.

wherein the porphyrin or the pharmaceutically salt thereof is in an effective amount to prevent the viral infection.

24. The composition of claim 23 wherein the pharmaceutically acceptable carrier is selected from the group consisting of ointments, creams,

gels, lotions, troches, suppositories, vaginal rings, liposomes, nanoparticulates, microspheres, and controlled release formulations.

25. The composition of claim 23 further comprising a therapeutically effective amount of at least one compound selected from the group consisting of antibiotics, virucidals, antifungals, and immunostimulants.

26. The composition of claim 23 comprising a therapeutically effective amount of at least one microbicide selected from the group consisting of carraguard, antibodies, defensins, cyclodextrins, and polyethylene hexamethylene biguanide.

27. The composition of claim 25 wherein the virucidal is selected from the group consisting of HPA-23, interferons, ribavirin, phosphonoformate, ansamycin, suramin, imuthiol, penicillamine, carbovir, 3'-azido-3'-deoxythymidine (AZT), 2',3'-dideoxycytidine (DDC), 2',3'-dideoxyinosine (DDI), 2',3'-dideoxyadenosine (DDA), 3'-azido-2',3'-dideoxyuridine (CS-87), 2',3'-dideoxy-2',3'-didehydrocytidine (D4C), 3'-deoxy-2',3'-didehydrothymidine (D4T) and 3'-azido-5-ethyl-2',3'-dideoxyuridine (CS-85).

28. The composition of claim 23 in a formulation for topical administration.

29. The composition of claim 23 in a formulation for administration via the female genital tract.

30. The composition of claim 23 wherein the porphyrin composition is effective for treating a sexually transmitted disease.

31. The composition of claim 23 in a formulation for administration via the rectum.

32. The composition of claim 23 wherein M is selected from the group consisting of gallium (Ga), aluminum (Al), cadmium (Cd), ruthenium (Ru), rhodium (Rh), platinum (Pt), osmium (Os), iridium (Ir), iron (Fe), cobalt (Co), zinc (Zn), molybdenum (Mo), titanium (Ti), manganese (Mn), chromium (Cr), nickel (Ni), magnesium (Mg), copper (Cu), indium (In), vanadium (V), silver (Ag), gold (Au), and tin (Sn).

33. The composition of claim 32 wherein M is selected from the group consisting of Cu and Fe.

34. The composition of claim 23 selected from the group consisting of TNapPS, TPP(2,6-F2)S,Cu; TAnthPS, TMPS,Co, DPEG,Fe, DPEG,Zn; TPPC,Fe; TPPC; TPP(2,6-C12)S,Fe and TPP(2,6-Cl2)S; TPP2FS; S; TPP(2,6-Cl2); TPP4ClS; TPP(2,6-F2)S,Cu; TPP(2F,FCF3)S; and mixtures thereof.

35. The composition of claim 23 wherein the composition is effective to inhibit infection or replication of a virus selected from the group consisting of HIV viruses and HSV viruses.

36. The composition of claim 23 wherein the composition is effective to inhibit infection or replication of a virus selected from the group consisting hepatitis B and C viruses, and papilloma viruses.

37. The composition of claim 35

wherein R^1, R^3, R^4, R^6, R^7, R^9, R^{10}, and R^{12} are hydrogen, and R^2, R^5, R^8, and R^{11} are alkyl, heteroalkyl, aryl, or heteroaryl groups, and

wherein the porphyrin as a whole bears one or more sulfonic acid or derivatized sulfonic acid groups.

38. The composition of claim 37 wherein the porphyrin is a Cu or Fe chelate of the structure of Formula I.

39. The composition of claim 23 where the composition is effective to inhibit infection or replication of a HSV virus,

wherein R^2, R^5, R^8, and R^{11} are hydrogens and R^1, R^3, R^4, R^6, R^7, R^9, R^{10}, and R^{12} are hydrogen, alkyl, heteroalkyl, or substituted alkyl groups, and

wherein the molecule as a whole bears two or more carboxylic acid groups.

40. The composition of claim 39 wherein the porphyrin is a Cu or Fe chelate of the structure of Formula I.

41. The composition of claim 23 wherein the composition is effective to inhibit infection or replication of a HIV virus,

wherein the compound is selected from the group consisting of TNapPS, TPP(2,6-F2)S,Cu; TAnthPS, TMPS,Co, DPEG,Fe, DPEG,Zn; TPPC,Fe; TPPC; TPP(2,6-C12)S,Fe and TPP(2,6-Cl2)S; TPP2FS;TPP4ClS; TPP(2,6-Cl2); TPP(2,6-F2)S,Cu; TPP(2F,FCF3)S; and mixtures thereof.

42. The composition of claim 39 wherein the compound is selected from the group consisting of DPIX,Fe; HPIX,Fe; HPIX,Zn; PPIX,In; MPIX,Co; PPIX,Co; PPIX,Fe; PPIX,In; DPIX 2,4-bis ethylene glycol,Cu; tetrakis(2,6-difluorosulfonatonatophenyl)porphyrin; tetrakis(2,6-difluorosulfonatonatophenyl)porphyrin,Cu; tetrakis(2,6-dichlorosulfonatonatophenyl)porphyrin; tetrakis(2-chlorosulfonatophenyl)porphyrin; tetrakis(3-chlorosulfonatophenyl)porphyrin; tetrakis(2-fluorosulfonatonatophenyl)porphyrin; tetrakis(2-fluorosulfonatonatophenyl)porphyrin,Cu; TMesPS,Co; TMesPS,Fe; TPPC4; TPPS3; TPPS3,Ag; TPPS3,Cu; TPPS3,Fe; TPPS3,Zn; TPPS4,Ag; TPPS4,Cu; TPPS4,Fe; TPPS4,Zn; and the sulfonated derivatives of tetrakis(1-naphthyl)porphyrin and tetrakis(2-naphthyl)porphyrin, the Zn, Fe, and Cu chelates thereof, and mixtures thereof.

43. The composition of claim 23 wherein the porphyrin or a metal chelate of the porphyrin is covalently linked to one or more sugars or sugar derivatives.

44. The composition of claim 23 wherein the porphyrin or a metal chelate of the porphyrin is covalently linked to one or more amino acids or peptides.